

**What is claimed is:**

1. An image display apparatus correcting false contour, comprising:
- a first light beam splitter passing a first wavelength band of a plurality of colored lights received, reflecting a second wavelength band of said plurality of colored lights received;
- a first panel receiving said first wavelength band of said plurality of colored lights, receiving color data and panel control signals, outputting first incident light corresponding to said received color data in accordance with said panel control signals to display said received color data starting from most significant bit to least significant bit; and
- a second panel receiving said second wavelength band of said plurality of colored lights, receiving said color data and panel control signals, outputting second incident light corresponding to said received color data in accordance with said panel control signals to display said received color data starting from least significant bit to most significant bit.
2. The apparatus of claim 1, further comprising:
- a second light beam splitter receiving first and second incident light from said first and second panels respectively, passing said second wavelength band of said second incident light outputted by said second panel, reflecting said first wavelength band of said first incident light outputted by said first panel; and
- a screen receiving said second wavelength band of light passed by said second light beam splitter and said first wavelength band of light reflected by said second light beam splitter.

1           3.     The image display apparatus of claim 1, further comprising:  
2           a light unit emitting the white light;  
3           a color switching unit receiving the white light from said light unit, receiving color switch  
4 signals, separating the white light into said plurality of colored lights, outputting each one of said  
5 plurality of colored lights serially in response to said color switch signals; and  
6           a first lens collimating the light received from said light unit and outputting the  
7 collimated light to said color switching unit.

1           4.     The apparatus of claim 2, said color data and panel control signals received by  
2 said first panel corresponding to first color data and first panel control signals, said color data and  
3 panel control signals received by said second panel corresponding to second color data and  
4 second panel control signals distinguishable from said first color data and first panel control  
5 signals.

1           5.     The apparatus of claim 2, further comprising a control unit receiving color signals  
2 and synchronization signals, outputting said color switch signals in accordance with said  
3 synchronization signals, outputting said color data corresponding to said received color signals,  
4 outputting said panel control signals.

1           6.     The apparatus of claim 5, said control unit controlling offset, contrast, and

2 brightness of the received color signals.

1 7. The apparatus of claim 5, said control unit performing signal processing on the  
2 received color signals including gamma correction.

1 8. The apparatus of claim 5, said control unit further comprising:  
2 a signal processing unit receiving said color signals, outputting said color data and said  
3 panel control signals; and  
4 a timing control unit receiving said synchronization signals, outputting said color switch  
signals.

1 9. The apparatus of claim 8, said synchronization signals corresponding to horizontal  
2 and vertical synchronization signals.

10. The apparatus of claim 2, further comprising:  
2 a first mirror reflecting said first wavelength received from said first light beam splitter,  
3 said first panel receiving said first wavelength reflected by said first mirror; and  
4 a second mirror reflecting said second wavelength received from said first light beam  
5 splitter, said second panel receiving said second wavelength reflected by said second mirror.

1 11. The apparatus of claim 2, said color switching unit outputting each one of said

2 plurality of colored lights seriatim at intervals of  $1/3$  of a period in accordance with said color  
3 switch signals.

1 12. The apparatus of claim 11, said plurality of colored lights output from said color  
2 switching unit corresponding to red light, green light, and blue light.

1 13. The apparatus of claim 2, said color switching unit outputting a first colored light  
2 of said plurality of colored lights while blocking all other colored lights of said plurality of  
colored lights.

1 14. The apparatus of claim 2, said color data output from said control unit  
2 corresponding to first color data output to said first panel and second color data output to said  
3 second panel, said first and second color data being distinguishable from each other.

1 15. The apparatus of claim 2, said panel control signals output from said control unit  
2 corresponding to first panel control signals output to said first panel and second panel control  
3 signals output to said second panel, said first and second panel control signals being  
4 distinguishable from each other.

1 16. The apparatus of claim 2, said first and second panels corresponding to liquid  
2 crystal display panels.

1 17 The apparatus of claim 2, said color switching unit corresponding to one selected  
2 from among a liquid crystal display shutter and a color wheel.

1 18. An image display apparatus, comprising:  
2 a control unit receiving color signals and synchronization signals, outputting color switch  
3 signals in accordance with said synchronization signals, outputting color data corresponding to  
4 said received color signals, outputting panel control signals;  
5 a light unit emitting white light;  
6 a color switching unit receiving the white light from said light unit, receiving said color  
7 switch signals from said control unit, separating the white light into a plurality of colored lights,  
8 outputting each one of said plurality of colored lights seriatim in response to said color switch  
9 signals;  
10 a first panel receiving P wavelength components of said plurality of colored lights  
11 outputted from said color switching unit, receiving said color data and panel control signals  
12 outputted by said control unit, outputting first incident light corresponding to said received color  
13 data applied by said control unit to data lines of each cell formed as a matrix in accordance with  
14 said panel control signals to display said received color data starting from most significant bit to  
15 least significant bit; and  
16 a second panel receiving S wavelength components of said plurality of colored lights  
17 outputted from said color switching unit, receiving said color data and panel control signals

18 outputted by said control unit, outputting second incident light corresponding to said received  
19 color data applied by said control unit to data lines of each cell formed as a matrix in accordance  
20 with said panel control signals to display said received color data starting from least significant  
21 bit to most significant bit.

1 19. The apparatus of claim 18, further comprising:

2 a first lens collimating the white light received from said light unit, outputting the  
3 collimated white light to said color switching unit;

4 a first light beam splitter passing said P wavelength components, reflecting said S  
5 wavelength components;

6 a second light beam splitter receiving said first and second incident light from said first  
7 and second panels respectively, passing said S wavelength components of said second incident  
8 light outputted by said second panel, reflecting said P wavelength components of said first  
9 incident light outputted by said first panel; and

10 a screen receiving and displaying light received from said second light beam splitter.

1 20. The apparatus of claim 19, said color switching unit outputting each one of said  
2 plurality of colored lights seriatim at intervals of  $1/3$  of a period in accordance with said color  
3 switch signals.

1 21. The apparatus of claim 19, said plurality of colored lights output from said color

switching unit comprising red light, green light, and blue light.

22. The apparatus of claim 21, said color switching unit outputting one of said plurality of colored lights while blocking the others of said plurality of colored lights.

23. The apparatus of claim 19, said color switching unit outputting a first colored light of said plurality of colored lights while blocking all other colored lights of said plurality of colored lights.

24. The apparatus of claim 19, said color data output from said control unit corresponding to first color data output to said first panel and second color data output to said second panel, said first and second color data being distinguishable from each other.

25. The apparatus of claim 24, said panel control signals output from said control unit corresponding to first panel control signals output to said first panel and second panel control signals output to said second panel, said first and second panel control signals being distinguishable from each other.

26. The apparatus of claim 19, said panel control signals output from said control unit corresponding to first panel control signals output to said first panel and second panel control signals output to said second panel.

1           27.    The apparatus of claim 19, said first and second panels corresponding to liquid  
2 crystal display panels.

1           28.    The apparatus of claim 19, said color switching unit corresponding to one selected  
2 from among a liquid crystal display shutter and a color wheel.

1           29.    An image display apparatus, comprising:  
2           a light unit emitting light;  
3           a color switching unit receiving the light from said light unit, receiving color switch  
4 signals, separating the light into a plurality of colored lights, outputting each one of said plurality  
5 of colored lights seriatim in response to said color switch signals;  
6           a light beam splitter passing a first wavelength band of said plurality of colored lights  
7 received from said color switching unit, reflecting a second wavelength band of said plurality of  
8 colored lights received from said color switching unit;  
9           a first panel receiving said first wavelength band of said plurality of colored lights,  
10 receiving color data and panel control signals, reflecting first incident light corresponding to said  
11 received color data applied to data lines of each cell formed as a matrix in accordance with said  
12 panel control signals to display said received color data starting from most significant bit to least  
13 significant bit;  
14           a second panel receiving said second wavelength band of said plurality of colored lights,



receiving said color data and panel control signals, reflecting second incident light corresponding to said received color data applied to data lines of each cell formed as a matrix in accordance with said panel control signals to display said received color data starting from least significant bit to most significant bit;

said light beam splitter receiving first and second reflected incident light from said first and second panels respectively, passing said first wavelength band of said second incident light reflected by said second panel, reflecting said second wavelength band of said first incident light reflected by said first panel; and

a screen receiving said first wavelength band of light passed by said light beam splitter and said second wavelength band of light reflected by said light beam splitter.

30. The apparatus of claim 29, said color switching unit outputting each one of said plurality of colored lights seriatim in accordance with said color switch signals.

31. The apparatus of claim 29, said plurality of colored lights output from said color switching unit corresponding to red light, green light, and blue light.

32. The apparatus of claim 29, said color switching unit outputting a first colored light of said plurality of colored lights while blocking all other colored lights of said plurality of colored lights.

1           33.    The apparatus of claim 29, said first and second panels corresponding to reflective  
2 ferroelectric liquid crystal panels.

1           34.    The apparatus of claim 29, said color switching unit corresponding to one selected  
2 from among a color wheel and an electric shutter.

1           35.    A method of displaying an image on an image display apparatus, comprising:  
2 emitting light from a light unit;  
3 receiving the light from said light unit and receiving color switch signals, separating the  
4 received light into a plurality of colored lights and outputting each one of said plurality of  
5 colored lights seriatim in accordance with said color switch signals, said separating being  
6 performed by a color switch unit;

7           passing a first wavelength band of said plurality of colored lights outputted from said  
8 color switching unit and reflecting a second wavelength band of said plurality of colored lights  
9 outputted from said color switching unit;

10          receiving said first wavelength band of said plurality of colored lights, receiving first  
11 color data and first panel control signals, transmitting first incident light corresponding to said  
12 received first color data in accordance with said first panel control signals to display said  
13 received first color data starting from most significant bit to least significant bit, said receiving of  
14 said first wavelength band being performed by a first panel;

15          receiving said second wavelength band of said plurality of colored lights, receiving

second color data and second panel control signals, transmitting second incident light corresponding to said received second color data in accordance with said second panel control signals to display said received second color data starting from least significant bit to most significant bit, said receiving of said second wavelength band being performed by a second panel;

receiving first and second incident light from said first and second panels respectively, passing said second wavelength band of said second incident light transmitted by said second panel, reflecting said first wavelength band of said first incident light transmitted by said first panel; and

receiving and displaying on a screen said second wavelength band of said second incident light transmitted and said first wavelength band of said first incident light reflected.

36. The method of claim 35, further comprising collimating the light received from said light unit and outputting the collimated light to said color switching unit.

37. The method of claim 35, said color switching unit outputting each one of said plurality of colored lights seriatim in accordance with said color switch signals.

38. The method of claim 37, said plurality of colored lights output from said color switching unit corresponding to red light, green light, and blue light.

1           39.    The method of claim 35, said color switching unit outputting a first colored light  
2 of said plurality of colored lights while blocking all other colored lights of said plurality of  
3 colored lights.

1           40.    The method of claim 39, said first and second panels being selected from among  
2 transmissive and reflective liquid crystal display panels.

1           41.    The method of claim 40, said color switching unit corresponding to one selected  
2 from among a liquid crystal display shutter and a color wheel.

1           42.    A false contour correction apparatus in an image display system driven in a digital  
2 system, the apparatus comprising:

3               a controller receiving a plurality of colored signals, performing a predetermined signal  
4 processing, and outputting color data in accordance with said signal processing; and

5               an optical unit receiving said outputted color data, outputting image data corresponding to  
6 said outputted color data to a screen via a first light path by displaying data in a sequence from  
7 most significant bit to least significant bit and via a second light path by displaying data in a  
8 sequence from least significant bit to most significant bit.

1           43.    The apparatus of claim 42, said optical unit further comprising:

2               a first digital display panel receiving said outputted color data from said controller and

3 panel control signals for driving said first digital display panel in accordance with first  
4 synchronization signals, said first display being located along said first light path; and

5 a second digital display panel receiving said panel control signals and said outputted color  
6 data from said controller for driving said second digital display panel in accordance with second  
7 synchronization signals, said second display being located along said second light path, said first  
8 and second light paths being separately located.

1 44. The apparatus of claim 43, said optical unit further comprising:  
2 an optical source generating and irradiating light;  
3 a collimating lens collimating light irradiated from said optical source;  
4 a color switching unit receiving the light from said collimating lens and sequentially  
5 outputting optical signals;

6 a first polarized beam splitter splitting said outputted optical signals received from said  
7 color switching unit according to a polarization of said outputted optical signals, conveying P  
8 wavelength components of said outputted optical signals along said first light path, conveying S  
9 wavelength components of said outputted optical signals along said second light path;

10 said first display being installed along said first light path, arranging bits so that said  
11 outputted color data are displayed in order from most significant bit to least significant bit;

12 said second display being installed along said second light path, arranging bits so that said  
13 outputted color data are displayed in order from least significant bit to most significant bit; and

14 a second polarized beam splitter splitting light received from said first and second

displays according to a polarization of the light received from said first and second displays.

45. The apparatus of claim 44, said sequentially outputted optical signals outputted from said color switching unit corresponding to red signals, green signals, and blue signals.

46. The apparatus of claim 44, said first and second displays being selected from among ferroelectric liquid crystal panels and liquid crystal display panels.

47. A false contour correcting method in an image display system, comprising:  
receiving image data and supplying said image data to a first display arranging bits of said image data so that said image data is driven and displayed in order from most significant bit to least significant bit; and

supplying said image data to a second display arranging bits of said image data so that said image data is driven and displayed in order from least significant bit to most significant bit.

48. The method of claim 47, said first and second panels being selected from among transmissive and reflective liquid crystal display panels.

49. The method of claim 47, further comprising:  
splitting said image data into a first light beam having P wavelength components and a second light beam having S wavelength components;

4 directing said first light beam to said first display;  
5 directing said second light beam to said second display; and  
6 guiding light received from said first and second displays to a screen to display on said  
7 screen data corresponding to said image data.